from the inner surface of closed end **312**. The hinge housing **310** is inserted into the hinge hole **211***a* or **213***a* of the double hinge arm **210**. The hinge shaft **320** or **420**, the hinge cam **330** or **430**, and the hinge spring **340** are successively accommodated within the receiving cavity **313**.

The hinge shafts **320** and **420** respectively include mountain-shaped portions **321** and **421** with a curved surface provided on one ends of the hinge shafts **320** and **420**, and hinge protrusions **323** and **423** protruding from the opened end **311***a* of the hinge housing **310** via the through hole **311***b* and provided on the other ends of the hinge shafts **320** and **420**. Stepped surfaces **327** and **427** are respectively formed on one ends of the hinge protrusions **323** and **423** so as to be supported by the inner wall of the hinge housing **310**. The hinge shafts **320** and **420** are rotated within the hinge housing **310** and then respectively fixedly connected to the first and second housings **101** and **102** of the terminal **100**. The hinge protrusions **323** and **423** protrude from the outer surface of the hinge housing **310** and are respectively connected to the first and second housings **101** and **102**. Planes **325** and **425** are respectively formed on the outer circumferences of the other ends of the hinge protrusions **323** and **423** so as to be fixedly connected to the first and second housings **101** and **102**. Preferably, the mountain-shaped portions **321** and **421** are formed to be radially symmetrical.

A plurality of valley-shaped portions **335** and **435** are respectively formed on the first ends of bodies **331** and **431** of the hinge cams **330** and **430**, so as to be engaged with the mountain-shaped portions **335** and **435** of the hinge shafts **320** and **420**. Thereby, the hinge cams **330** and **430** and the hinge shafts **320** and **420** are accommodated within the hinge housing **310** so that the mountain-shaped portions **321** and **421** are in a sliding contact with the corresponding valley-shaped portions **335** and **435**. Preferably, the valley-shaped portions **335** and **435** are radially symmetrical. Guide protrusions **333** and **433** are respectively formed on the outer circumference of the bodies **331** and **431** of the hinge cams **330** and **430** so as to be inserted into the guide groove **315** of the hinge housing **310**. Therefore, the hinge cams **330** and **430** perform a rectilinearly reciprocating motion within the hinge housing **310**.

Compared to the second hinge module **400**, the hinge shaft **320** and the hinge cam **330** of the first hinge module **300** differ from the hinge shaft **420** and the hinge cam **430** of the second hinge module **400** in the number of the mountain-shaped portions **321** and **421**, and the valley-shaped portions **335** and **435**.

The first hinge module **300** shown in FIG. **3** includes a pair of the mountain-shaped portions **321**, and two pairs of the valley-shaped portions **335**. The mountain-shaped portions **321** are spaced from each other at or about 180° intervals, and the valley-shaped portions **335** are spaced from each other at or about 90° intervals. The hinge shaft **320** of the first hinge module **300** stops its rotation at or about 90° intervals. Therefore, the double hinge arm **210** stops its rotation against the first housing **101** at or about 90° intervals.

The second hinge module **400** shown in FIG. **4** includes two pairs of the mountain-shaped portions **421**, and four pairs of the valley-shaped portions **435**. The mountain-shaped portions **421** are spaced from each other at or about 90° intervals, and the valley-shaped portions **435** are spaced from each other at or about 45° intervals. The hinge shaft **420** of the first hinge module **400** stops its rotation at or about 45° intervals. Therefore, the double hinge arm **210** stops its rotation against the second housing **102** at or about 45° intervals.

One end of the hinge spring **340** is supported by the inner wall of the closed end **312** of the hinge housing **310**, and the other end of the hinge spring **340** supports the hinge cam **330** or **430**. Therefore, the hinge cams **330** and **430** are pressed by an elastic force supplied from the hinge spring **340** in a direction such that the mountain-shaped portions **321** and **421** of the hinge shafts **320** and **420** are closely engaged with the valley-shaped portions **335** and **435** of the hinge cams **330** and **430**. Preferably, a compressively coiled spring is used as the hinge spring **340**.

The hinge dummies **299** (see FIG. **2**) are respectively installed on the openings **295** and **297** of the first and second housings **101** and **102**, thereby supporting the rotary axes A**1** and A**2** of the double hinge arm **210**. Therefore, fixing holes **103** and **105** for receiving the hinge dummies **299** are respectively formed on the first end of the openings **295** and **297** of the first and second housing **101** and **102**, and supporting holes **211***b* and **213***b* are respectively formed on the other end of the double hinge arm **210**. The hinge dummies **299** are respectively fixed to the fixing holes **103** and **105** of the openings **295** and **297** of the first and second housings **101** and **102**, and rotatably inserted into the supporting holes **211***b* and **213***b* of the first and second hinge arms **211** and **213** respectively, thereby supporting the rotary axes A**1** and A**2** of the double hinge arm **210**.

The rotary axes A**1** and A**2** including the first and second hinge modules **300** and **400**, and a pair of the hinge dummies **299** are respectively located on the first side of the first and second housings **101** and **102**.

FIGS. **5** through **9** illustrate an example of an opening and closing action of the portable wireless terminal **100** shown in FIG. **1**. As described above, the double hinge arm **210** stops its rotation at or about 90° or 45° intervals by the operation of the first or second hinge module **300** or **400**. FIGS. **5** to **7** respectively show the portable wireless terminals **100** in opened states by rotating the second housing **102** at or about 90°, 135°, and 180° against the first housing **101** by the operation of the second hinge module **400**. FIG. **8** shows the portable wireless terminal **100** in a substantially fully opened state by simultaneously rotating the first hinge module **300**, at or about 90°, and rotating the second hinge module **400** at or about 90° also, so that the first housing **101** is substantially coplanar with the second housings **102**. As shown in FIGS. **5** to **8**, when the second housing **102** is opened from the first housing **101** at or about 90°, 135°, or 180°, a user can conveniently input data via the input means such as the keyboard **11** provided on the first housing **101**.

FIG. **9** shows the portable wireless terminal **100** in which the first and second hinge modules **300** and **400** are respectively rotated at or about 180°.The second housing **102** is therefore rotated from the first housing **101** at or about 360°, and the rear surface of the second housing **102** is substantially overlapped on the rear surface of the first housing **101**. Comparison of the portable wireless terminal **100** shown in FIGS. **1** (in which the portable wireless terminal **100** is in the communication mode) and **9** (in which the portable wireless terminal **100** is in the PDA mode) illustrates the differences in the configurations. In the PDA mode, where the rear surface of the second housing **102** is substantially overlapped on the rear surface of the first housing **101**, a user can conveniently use the portable wireless terminal **100** while walking.

In order to stop the rotation of the second housing **102** at or about 45° intervals, at least one hinge module of the first